Commonwealth Edison
LaSalle County Nuclear Station
Rural Route #1, Box 220
Marseilles, Illinois 61341
Telephone 815/357-6761

April 23, 1986

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

Dear Sir:

Reportable Occurrence Report #85-027-01, Docket #050-374 is being submitted to your office to supercede previously submitted Reportable Occurrence Report 85-027-00. This supplement provides information regarding the cause of the pipe failure.

R. D. Bailey
for G. J. Diederich
Station Manager
LaSalle County Station

GJD/DRR/kg

Enclosure

xc: NRC, Regional Director
INPO-Records Center
File/NRC

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NRC Form 366 (9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO 3150-0104
EXPIRES 8/31/85

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LICENSEE EVENT REPORT (LER)

G-E.

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
LaSalle County Nuclear Station/Unit 2	0 5 0 0 0 3 7 4	1 OF 0 3

TITLE (4)

Update on HPCS-CY Return Line Rupture Due to Biological Corrosion

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES	DOCKET NUMBER(S)
0 5	2 7	8 5	8 5	0 2 7	Rev. 0 on file	0 4	2 3	8 6		0 5 0 0 0
										0 5 0 0 0

OPERATING MODE (9)	4	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
POWER LEVEL (10)	0 0 0	20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
		20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)
		20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vii)	X OTHER (Specify in Abstract below and in Text, NRC Form 366A)
		20.405(a)(1)(iii)	50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	
		20.405(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)	Voluntary
		20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
Harold T. Vinyard, Tech Staff Engineer, extension 323	AREA CODE 8 1 5 3 5 7 - 6 7 6 1

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS
C	B G	P S P	Z 9 9 9	Y					

SUPPLEMENTAL REPORT EXPECTED (14)

		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)	X NO				

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

On May 27, 1985, at approximately 0030 hours, with Unit 2 in Cold Shutdown at 0% power, the High Pressure Core Spray underground return line to the Cycled Condensate storage tank ruptured expelling approximately 200,000 gallons of CY water into the soil which surfaced near the Off Gas Filter Building. The line was immediately isolated. Sample results of the water revealed low but detectable contamination levels. These levels were, however, within release limits. An aggressive test program has located and isolated all underground piping with a potential for leakage. The failures identified to date are limited to underground Schedule 10 stainless steel piping. The failure mode of the HPCS-CY piping appears to be a result of biological corrosion, primarily of the weld metal. This was a result of a combination of susceptible weld metal, coating failure, and lack of cathodic protection, in the presence of iron oxidizing bacteria.

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I. EVENT DESCRIPTION:

On May 27, 1985, at approximately 0030 hours, a Security Guard observed water bubbling out of the ground near the Off Gas Filter Building and reported this fact to the Operating Shift Supervisor. A review of the operations in progress revealed the Unit 2 High Pressure Core Spray (HPCS, BG) pump had been running for several hours recirculating Cycled Condensate storage tank (CY, KA) water as part of an operation to increase the water quality of the tank. The pump was immediately secured and water flow out of the ground decreased significantly. The High Pressure Core Spray return line to the Cycled Condensate storage tank was immediately isolated and taken out of service to prevent further leakage. Sample results of the ground water revealed low contamination levels but within 10CFR20 release limits. A gamma spectrum analysis of the surface water indicated that it was essentially identical to CY water. At the time of this event Unit 2 was in Cold Shutdown at 0% power.

A monitoring program was immediately established to sample the water runoff into the cooling lake. Samples were taken every 4 hours for the 32 hour time period following the event. Radionuclide concentration in these samples decreased to an insignificant level within a short time period following the event. Cooling pond blowdown to the Illinois River was secured until samples of the blowdown were taken and analyzed for gamma emitters. No detectable concentrations were found.

II. CAUSE:

After further testing, the High Pressure Core Spray return line to the Cycled Condensate storage tank was confirmed as the source of the leakage. This return line runs 24' below the ground from the Reactor Building to the CY tank and is constructed of Class D, Schedule 10-A140 Type 304 stainless steel. The failure mode of the HPCS-CY piping appears to be a result of biological corrosion, primarily of the weld metal. This was a result of a combination of susceptible weld metal, coating failure, and lack of cathodic protection, in the presence of iron oxidizing bacteria.

III. PROBABLE CONSEQUENCES OF THE OCCURRENCE:

Using a water balance method over the time span of the pump run, a conservative upper limit on the size of the leak was established at 500 gpm, which corresponds to a volumetric water loss of approximately 200,000 gallons.

III. PROBABLE CONSEQUENCES OF THE OCCURRENCE: (Continued)

The High Pressure Core Spray system can supply water to the reactor vessel from either the Cycled Condensate storage tank or the Suppression Pool (NH) in the event of a loss of coolant accident. While the High Pressure Core Spray system is in the Normal/Standby Mode, its suction path is from the Cycled Condensate storage tank. The system will automatically transfer suction to the Suppression Pool when tank level is low or a high water level condition exists in the Suppression Pool. Since High Pressure Core Spray suction piping from the CY tank is of the same piping design as the return line, it has also been isolated. The isolation of both the CY tank suction and return lines has no impact on the ability of the High Pressure Core Spray system to perform its design function. Suppression Pool chemistry will be closely monitored while the CY suction path is unavailable and surveillance requirements for ASME/Technical Specification related activities will be satisfied using the Suppression Pool as a suction source.

IV. CORRECTIVE ACTION:

The High Pressure Core Spray return line to the Cycled Condensate storage tank was isolated immediately after the event. A test program for both Units 1 and 2 was developed to test all HPCS-CY underground piping for leaks. A pressure test on the Unit 1 HPCS-CY return line produced evidence of a similar leak, although of considerably less magnitude (30 gpm). This line has also been isolated. An investigation of all underground piping indicates that failures to date are limited to underground Schedule 10 stainless steel piping, which includes all HPCS-CY underground piping. The strategy regarding long-term replacement of these lines is still under discussion. (AIR 374-200-85-00113)

A core drilling/sample well program has also been developed to both determine the scope of underground contamination and monitor for any evidence of further contamination.

V. PREVIOUS OCCURRENCES:

None.

VI. NAME AND TELEPHONE NUMBER OF PREPARER:

Harold T. Vinyard, Tech Staff Engineer, 815/357-6761, extension 323.